UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

01-1029

INTERACTIVE PICTURES CORPORATION
(formerly known as Omniview, Inc.)

Plaintiff-Appellee,

v.

INFINITE PICTURES, INC.,

Defendant-Appellant,

and

BILL TILLMAN, CRAIG JONES, and GARY WALTENBAUGH
(doing business as Graphic Effects, also known as Graphic EFX),

Defendants.

Robert F. Altherr, Jr., Banner & Witcoff, LTD, of Washington, DC, argued for plaintiff-appellee. With him on the brief were Nina L. Medlock, and Bradley C. Wright. Of counsel was Thomas H. Jackson, Banner & Witcoff, LTD.

J. Michael Jakes, Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P., of Washington, DC, argued for defendant-appellant. With him on the brief was Christine E. Lehman.

Appealed from: United States District Court
for the Eastern District of Tennessee

Judge Leon Jordan

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DECIDED: December 20, 2001

Before LOURIE, Circuit Judge, ARCHER, Senior Circuit Judge, and GAJARSA, Circuit Judge.

LOURIE, Circuit Judge.

Infinite Pictures, Inc. appeals from the decision of the United States District Court for the Eastern District of Tennessee denying its various motions following a jury verdict finding Infinite and the other defendants liable for infringement of Interactive Pictures Corp.'s U.S. Patent 5,185,667 under the doctrine of equivalents and awarding $1 million in

damages. Because the district court did not err as a matter of law by refusing to preclude infringement by equivalents, and because the jury's finding of equivalence and award of damages were supported by substantial evidence, we affirm.

BACKGROUND

A. The '667 Patent and its Prosecution History

The '667 patent describes an image viewing system whereby a user can view a specified portion of a hemispherical field of view in corrected perspective. '667 patent, col. 2, ll. 35-60. The image viewing system utilizes, inter alia, a camera equipped with a fisheye lens, an input memory, an image transform processor, and an output. Id. at col. 3, ll. 25-48, Figure 1. In operation, the fisheye lens camera produces a circular image of an entire hemispherical field of view. Id., Abstract. As the hemispherical field of view is mapped into a circle, the fisheye lens introduces distortion — fisheye distortion — such that straight lines appear curved in the circular image. Id. at col. 4, ll. 22-47. The circular image data is stored in the input memory. Id. at col. 3, ll. 25-48. The image transform processor reads the circular image data from the input memory, accepts user input of pan and tilt angles to specify a region of interest in the image, mathematically transforms the image data in that region so as to correct the fisheye distortion, and outputs a perspective corrected view of that region to the system's output. Id. at col. 2, ll. 35-60. The user may also specify desired rotation and magnification of the region of interest. Id. The system performs the mathematical transformations electronically, without moving parts, id. at col. 3, ll. 10-24, preferably at real time rates, id. at col. 4, ll. 44-47.

Claim 1, the only claim at issue, reads as follows:

> 1. A device for providing perspective corrected views of a selected portion of a hemispherical view in a desired format that utilizes no moving parts, which comprises:
>
> a camera imaging system for receiving optical images and for producing output signals corresponding to said optical images;
>
> fisheye lens means attached to said camera imaging system for producing said optical images, throughout said hemispherical field-of-view, for optical conveyance to said camera imaging system;
>
> image capture means for receiving said output signals from said camera imaging system and for digitizing said output signals from said camera imaging system;
>
> input image memory means for receiving said digitized signals;
>
> image transform processor means for processing said digitized signals in said input image memory means according to selected viewing angles and magnification, and for producing output transform calculation signals according to a combination of said digitized signals, said selected viewing angles and said selected magnification;
>
> output image memory means for receiving said output signals from said image transform processor means;
>
> input means for selecting said viewing angles and magnification;

> microprocessor means for receiving said selected viewing angles and magnification from said input means and for converting said selected viewing angles and magnification for input to said image transform processor means to control said processing of said transform processor means; and
>
> output means connected to said output image memory means for recording said perspective corrected view according to said selected viewing angles and magnification.

Id. at col. 8, ll. 27-66 (emphasis added).

Claim 1 was initially rejected by an Examiner at the U.S. Patent and Trademark Office under, inter alia, 35 U.S.C. § 103, as being obvious over U.S. Patent 5,067,019, issued to Juday et al., in light of U.S. Patent 5,068,735, issued to Tuchiya et al. The applicant challenged the propriety of the rejection by noting several deficiencies in the Juday reference vis-à-vis claim 1 and disputing the relevance of Tuchiya. Additionally, the applicant amended claim 1 in several ways, including inserting the words "transform calculation" to the section reciting the "image transform processor means," so that "output signals" became "output transform calculation signals." That change was made without any explanation. After receipt of the applicant's claim amendments and arguments, the Examiner allowed claim 1 without stating in the record any reasons for the allowance.

B. The Accused Product

Infinite makes and markets a software package known as the "SmoothMove® Panorama Web Builder." The product has two components: a "PhotoSeamer"

program and a "Viewer" program. The PhotoSeamer is designed to accept a set of three images from a 180° fisheye lens camera or other sources, align and seam the images together into a 360° panorama, and save the panorama image in an equirectangular format (a ".pan" file). The collection and preparation of an equirectangular panorama file is an "off-line" operation, meaning that it cannot be accomplished in real time with fast changing images, such as motion video. Next, the Viewer reads the equirectangular panorama file and displays a portion of the image, as determined by the user's input of "navigation controls" (e.g., left/right, up/down, and zoom in/out) in a "SmoothMove® Pan" window. Infinite Pictures, SmoothMove® Panorama Web Builder Developer Manual 24, version 2 (1996). The Viewer reacts in real time to the user's input, producing the selected image without fisheye distortion.

C. The District Court Proceedings

Interactive brought suit against Infinite alleging that a computer equipped with a fisheye camera and executing the SmoothMove® software infringed the '667 patent. Interactive conceded that such a computer did not literally infringe the patent because SmoothMove's® equirectangular panorama file was different from the claimed "digitized signals" input to the "image transform processor means." However, Interactive presented a theory of infringement based on the doctrine of equivalents, alleging that SmoothMove's® equirectangular panorama file, though not an image obtained directly from a fisheye lens camera, was substantially similar to it. The case went to trial before a jury on the issues of infringement under the doctrine of equivalents, validity, and damages. The jury returned a verdict finding claims 1-8 infringed and not invalid, and awarded Interactive $1 million in damages based on

evidence of a reasonable royalty on Infinite's sales determined in a hypothetical negotiation between Interactive and Infinite.

The parties also submitted to the jury the question whether a hypothetical version of claim 1 would ensnare the prior art. The hypothetical claim differed from claim 1 in that the term "said digitized signal" was replaced by "an equirectangular panorama file," as Infinite argued that the hypothetical claim would be unpatentable over certain prior art, but the jury determined that hypothetical claim 1 would not ensnare that prior art.

Following the trial, Infinite made a number of motions, including: (1) a motion for judgment based on the defense of prosecution history estoppel; (2) a motion for judgment of noninfringement under the doctrine of equivalents as a matter of law ("JMOL") on the grounds that SmoothMove® lacks an equivalent to the structure corresponding to a means-plus-function limitation and that there was a lack of substantial evidence to support the verdict of equivalence; and (3) a motion to set aside the jury's damage award in favor of a remittitur or new trial on the issue of damages. The district court denied all three motions. In deciding the prosecution history estoppel issue, the district judge performed a "flexible bar" analysis, Interactive Pictures, Corp. v. Infinite Pictures, Inc., No. 3:96-CV-849, slip op. at 4-10 (E.D. Tenn. Mar. 31, 1999), as this court had not yet issued its decision in Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558, 56 USPQ2d 1865 (Fed. Cir. 2000) (en banc), cert. granted, 69 U.S.L.W. 3779 (U.S. June 18, 2001) (No. 00-1543), which discarded that approach in favor of an absolute bar, id. at 563-64, 56 USPQ2d at 1868.

Infinite appeals from the judgment of the district court. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1) (1994).

DISCUSSION

We review a district court's denial of a motion for JMOL de novo, reapplying the JMOL standard used by the district court. Sextant Avionique, S.A. v. Analog Devices, Inc., 172 F.3d 817, 824, 49 USPQ2d 1865, 1869 (Fed. Cir. 1999). JMOL is appropriate when "there is no legally sufficient evidentiary basis for a reasonable jury to find for that party on that issue." Fed. R. Civ. P. 50(a)(1). On appeal, this court must consider the record evidence in the light most favorable to the non-movant, "drawing all reasonable inferences in its favor, without disturbing the jury's credibility determinations or substituting our resolutions of conflicting evidence for those of the jury." Applied Med. Res. Corp. v. U.S. Surgical Corp., 147 F.3d 1374, 1377, 47 USPQ2d 1289, 1290 (Fed. Cir. 1998). To prevail, "an appellant must show that the jury's findings, presumed or express, are not supported by substantial evidence or, if they were, that the legal conclusion(s) implied from the jury's verdict cannot in law be supported by those findings." Celeritas Techs., Ltd. v. Rockwell Int'l Corp., 150 F.3d 1354, 1358, 47 USPQ2d 1516, 1519 (Fed. Cir. 1998) (internal quotation marks omitted).

A determination of infringement requires a two-step analysis. "First, the court determines the scope and meaning of the patent claims asserted, and then the properly construed claims are compared to the allegedly infringing device." Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454, 46 USPQ2d 1169, 1172 (Fed. Cir. 1998) (en banc) (citations omitted). Comparison of the claim to the accused device requires a determination that every limitation of the claim or its substantial equivalent be found in the

accused device. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29 (1997). Whether a patentee can avail itself of the doctrine of equivalents implicates certain questions of law, which we review de novo. See, e.g., id. at 39 n.8 (whether a patent's prosecution history estops the patentee from arguing an equivalent is an issue of law). Determination of infringement by equivalents is an issue of fact, Bai v. L & L Wings, Inc., 160 F.3d 1350, 1353, 48 USPQ2d 1674, 1676 (Fed. Cir. 1998), which after a jury trial we review for substantial evidence, Gen. Electro Music Corp. v. Samick Music Corp., 19 F.3d 1405, 1409, 30 USPQ2d 1149, 1152 (Fed. Cir. 1994). We will not disturb a jury finding of infringement by equivalents unless "the evidence so favors [the accused infringer] that reasonable jurors could not arrive at a contrary verdict." Id.

An award of damages by a jury is upheld on appellate review unless it is clearly not supported by evidence, grossly excessive, or based only on speculation and guesswork. Oiness v. Walgreen Co., 88 F.3d 1025, 1031, 39 USPQ2d 1304, 1308 (Fed. Cir. 1996). We review a decision denying a grant of remittitur or a new trial because of an excessive damages award for an abuse of discretion. See id. at 1029, 39 USPQ2d at 1306 (applying tenth circuit law); see also Skalka v. Fernald Envtl. Restoration Mgmt. Corp., 178 F.3d 414, 424 (6th Cir. 1999), cert. denied, 120 S. Ct. 2687 (2000) (applying same standard under sixth circuit law).

Infinite argues that devices containing its SmoothMove® software cannot infringe claim 1 of the '667 patent as a matter of law for three reasons: (1) amendments to the "image transform processor means" limitations and prosecution arguments relating to the same limitation estop Infinite from relying on the doctrine of equivalents for that

limitation; (2) the asserted range of equivalents would ensnare certain prior art; and (3) the asserted equivalent of the "image transform processor means" limitation — a limitation construed under 35 U.S.C. § 112, paragraph 6, and not literally present in SmoothMove® — predates the patent, thereby precluding Infinite from relying on the doctrine of equivalents for that limitation. Additionally, Infinite argues that there are substantial differences under both the known interchangeability test and the function-way-result test. Finally, Infinite argues that Interactive's testimony concerning damages was flawed. Interactive responds that neither prosecution history estoppel, prior art, nor the predating nature of SmoothMove's® technology precludes it from prevailing on its claim of infringement under the doctrine of equivalents. Interactive also responds that substantial evidence supports both the jury's findings of infringement by equivalence and the jury's award of damages.

A. Legal Preclusion of the Doctrine of Equivalents

1. Prosecution History Estoppel

Infinite argues that Interactive is estopped from asserting infringement by equivalents for two reasons. First, Infinite contends that Interactive narrowed the "image transform processor means" limitation during prosecution by replacing the words "output signals" with the words "output transform calculation signals," and Infinite is thus barred from asserting any equivalents to that limitation, under Festo. In Infinite's view, the amendment changed the nature of the claimed output signals. Infinite further asserts that a more particular recitation of the output signals was necessary to define the invention over the prior art cited prior to the amendment. Second, Infinite argues that Interactive's arguments that were made during prosecution in order to traverse the

outstanding prior art rejections estop Interactive from asserting infringement by equivalents of the "image transform processor means" limitation. Infinite contends that Interactive's remarks to the Examiner characterized the invention as a one-step image transformation system while characterizing Juday as disclosing a two-step image transformation process — first creating a look-up table off-line and then transforming the image using the look-up table. Infinite points out that SmoothMove® also involves a two-step process — first creating the equirectangular panorama file with the PhotoSeamer, an off-line operation, and then viewing selected portions using the Viewer.

Interactive responds that the amendment changing "output signals" to "output transform calculation signals" did not narrow the claim, but merely clarified it by relabeling the signals without changing their identity or qualities. Interactive also responds that the arguments made during prosecution did not disclaim coverage of the SmoothMove® software. Interactive characterizes its remarks to the Examiner as not drawing a one-step versus two-step distinction, but rather pointing out that Juday's system cannot provide continuous changes in viewing angle, rotation, and magnification of the perspective corrected output image portion in real time relative to the user's input of different viewing angle, rotation, and magnification.

We agree with Interactive that the claim amendment and arguments do not estop Infinite from asserting infringement on the ground that the "image transform processor means" limitation is met by equivalence. As to the amendment-based estoppel issue, we conclude that the addition of the words "transform calculation" was not a narrowing amendment because that addition did nothing more

than make express what had been implicit in the claim as originally worded. That interpretation flows from the original claim as a whole and in light of the specification. First, the claim names the processor a "transform processor," and thus "transform" describes what the processor does. Secondly, the specification refers to the corresponding structure as "X-MAP and Y-MAP transform processors," '667 patent, col. 4, ll. 1-2 (emphasis added), and derives equations by which the transform is calculated, id. at col. 7, ll. 3-54. Given such context, one skilled in the art could reach no other conclusion than that the "output signals" are the result of a transform calculation. Because the amendment merely made explicit what had been implicit in the claim, the amendment was not made for a "substantial reason related to patentability" and thus does not create prosecution history estoppel. Warner-Jenkinson, 520 U.S. at 33, 41 USPQ2d at 1873; see also Turbocare Div. of Deman Delaval Turbomach. Corp. v. Gen. Elec. Co., 264 F.3d 1111, 1125-26, 60 USPQ2d 1017, 1028 (Fed. Cir. 2001) (holding that addition of the word "contact" to a claim did not narrow the claim and therefore did not estop application of the doctrine of equivalents for that element because another claim phrase, "small diameter position," when read in light of the specification, necessarily implied "contact.").

Infinite also argues that Interactive narrowed the definition of the phrase "output signals" in order to avoid the prior art. Infinite's argument is based on the following applicant remark made during prosecution concerning "[t]he present invention, as defined most broadly in Claim 1":

> The [digitized fisheye image] information in this input memory is processed with a transform processor to produce output signals corresponding to the perspective

> corrected views according to selected viewing angles and magnification, with these output signals being produced according to a combination of the digitized signals, the selected viewing angles and the selected magnification.

Although that remark does describe an aspect of the invention not found in the prior art, it did not alter what the phrase "output transform calculation signals," or more simply the phrase "output signals," meant in the claim and the patent as a whole. On the contrary, the remark is consistent with the plain language of the claim and the portion of the specification concerning the output signals. That remark reinforces our conclusion that no difference exists between the two phrases. The remark uses the shorthand "output signals" even though claim 1 contemporaneously had been amended to recite "output transform calculation signals." The applicant's interchanging of the two phrases therefore indicates that the phrases have the same meaning.

As to the argument-based estoppel issue, we agree with Interactive that the arguments made during prosecution to distinguish Juday's '019 patent do not create estoppel. As illustrated in Figure 1 of the '019 patent, Juday discloses an image processing system, including a camera 4, an analog-to-digital converter 6, a programmable remapper 10, a digital-to-analog converter 14, and a monitor 18, connected serially in that order. '019 patent, Figure 1. The programmable remapper 10 transforms a digitized camera image into another form according to an operator selected look-up table. Id. at col. 3, ll. 49-59. By specifying a different look-up table, a different transform may be applied. Id. Juday discloses specific transforms to accommodate particular vision impairments, viz., remapping an image away from the

central portion and into the periphery to accommodate maculopathy, and compressing an image including its periphery into just the central portion to accommodate tunnel vision. Id. at col. 4, ll. 4-19. Each look-up table is determined off-line and then stored in the memory of the remapper 10. Id. at col. 6, ll. 1-25. Juday's only mention of a fisheye lens is to note that the remapper 10 could introduce fisheye distortion when the image processing system is used as a prosthesis for retinitis pigmentosa. Id. at col. 14, ll. 40-58.

The Examiner rejected claim 1 as being obvious over Juday because, according to the Examiner, Juday's image processing system read on claim 1 except that Juday's system lacked the capability to accept viewing angle and magnification selections by the user. The Examiner considered that capability to be well known in the art and concluded that one of ordinary skill in the art would have been motivated to add those features to Juday's device so as to result in the invention of claim 1.

The applicant responded to the obviousness rejection by noting, inter alia, three deficiencies in the Juday system: (1) the lack of a fisheye lens; (2) the lack of "pan and tilt implementation," image rotation, and magnification; and (3) the lack of real time capability. Concerning the latter, the applicant stated:

> Juday et al. utilizes a group of pre-selected 'look-up' tables for remapping an image into the pre-selected configurations. A specific look-up table is then used by the researcher to achieve a given remapping of the input data. Due to this functioning, the resultant 'corrected image' is created in real-time at video rates relative to the input to the

> system for only a limited number of image orientations and magnifications. Continuous change in orientation and magnification is not feasible in real time at video rates with the Juday et al. device. Hence, perspective corrected pan and tilt is not possible in real time with that device (in contrast to the action with the device of the Applicant). . . . Further, Juday et al. fails to provide either magnification or image rotation. These cannot be accomplished by Juday et al. without continuous redetermination of the transformal mapping, with this not being possible with the look-up table type of transformations.

We do not read those remarks as drawing a distinction between a one-step viewing system and a two-step viewing system. Infinite's reading appears to misapprehend Juday's look-up tables by assuming that they are intermediate forms of the image. That is not the case. Juday's look-up tables represent the transformations themselves, not the output images. '019 patent at col. 3, ll. 49-59. Rather than drawing a one-step versus a two-step distinction, the remarks point out that Juday's system cannot produce a view with a different orientation, rotation, or magnification, unless a different look-up table is utilized, and widespread changing of look-up tables is not practical in real time. In contrast, the invention's transform calculation can provide a perspective corrected output image portion with variable viewing angle, rotation, and magnification. Because the viewing angle, rotation, and magnification are variables built into the transformation, the output can change in real time relative to the user's input of changes to those parameters. (That is also how the Viewer module of the accused software operates, albeit on an

intermediate form of the image.) Accordingly, because the applicant's remarks pertain only to the invention's capability to respond in real time to user parameters, Interactive is not estopped from asserting that Infinite's two-step viewing software infringes the '667 patent under the doctrine of equivalents.

Because neither the claim amendment nor the applicant's arguments during prosecution estop Interactive from asserting that the SmoothMove® software contains an element equivalent to the "image transform processor means," we affirm the district court's denial of Infinite's post-trial motion on the issue of prosecution history estoppel.

2. Prior Art Limitations on the Doctrine of Equivalents

Infinite next argues that the asserted scope of equivalents would not have been patentable over the following prior art articles: G. David Ripley, DVI – A Digital Multimedia Technology, 32 Communications of the ACM 811 (1989) ("Ripley"); Ned Greene, Environment Mapping and Other Applications of World Projections, 6 IEEE Computer Graphics and Applications 21 (1986) ("Greene"); and Mario Onoe & Yoshinori Kuno, Digital Processing of Images Taken by Fish-Eye Lens, IEEE: Proceedings, New York 105 (1982) ("Onoe"). According to Infinite, Ripley and Greene disclose fisheye lens cameras capturing hemispherical views, which are digitized and transformed in their entirety to equirectangular projections, from which a user can choose to view a certain portion, while Onoe discloses transformation algorithms for converting a fisheye image to a perspectively correct rectangular image. Interactive responds that substantial evidence supports the jury's finding that the hypothetical claim does not encompass what Ripley, Greene, and Onoe teach.

More particularly, Interactive states that the articles individually and cumulatively do not disclose or suggest perspective corrective transformation of only a portion of an image with user selection of magnification and rotation. Infinite counters that the jury's finding is merely advisory on that issue of law.

It is well settled law that a patentee cannot assert a range of equivalents that encompasses the prior art. Wilson Sporting Goods Co. v. David Geoffrey & Assocs., 904 F.2d 677, 683, 14 USPQ2d 1942, 1948 (Fed. Cir. 1990). To test this limit, the notion of a hypothetical claim may be useful. Id. at 684, 14 USPQ2d at 1948. A hypothetical claim may be constructed to literally cover the accused device. Id. If such a claim would be unpatentable under 35 U.S.C. §§ 102 or 103, then the patentee has overreached, and the accused device is noninfringing as a matter of law. Id. at 683-84, 14 USPQ2d at 1948. The burden of producing evidence of prior art to challenge a hypothetical claim rests with an accused infringer, but the burden of proving patentability of the hypothetical claim rests with the patentee. Streamfeeder, LLC v. Sure-Feed Sys., Inc., 175 F.3d 974, 984, 50 USPQ2d 1515, 1521 (Fed. Cir. 1999).

We conclude that Ripley, Greene, and Onoe collectively fail to disclose or suggest the hypothetical version of claim 1 presented to the jury. The Ripley article, written by Infinite's founder, describes a system called "Palenque," Ripley at 881-19, which was a precursor of SmoothMove®. Like SmoothMove®, Palenque produced an equirectangular panorama file from a photographic image captured by a fisheye lens camera. Id. Although the Ripley article does not address whether Palenque provided perspective correction, magnification, or rotation of the selected portion of the image, the testimony of Ripley and others firmly establishes that Palenque lacked those

capabilities; Infinite does not indicate otherwise. In other words, Palenque merely copied a user-specified portion of the panorama for display on an output device, without perspective correction and without the capability for magnification or rotation.

The Greene article describes a technique for projecting a fisheye image onto a half cube and thus providing perspective correction. Greene at 27-28. The Onoe article describes three computational methods for correcting distortion in fisheye images and thereby accurately measuring parameters (e.g., distance) from fisheye images. Onoe at 105. One method employs a single fisheye image with partial a priori knowledge of parameters. Id. The other two methods employ stereo fisheye images without a priori knowledge of parameters. Id.

While Greene or Onoe may have taught one of ordinary skill in the art to add a perspective correction capability to the Palenque system described by Ripley, it is not clear that perspective correction is applied only to the user-selected portion of the image, rather than to the entire image. Even assuming perspective correction of only a portion of the image, the combination taught by the cited articles would lack at least the capability of the user to magnify or rotate the selected, perspective-corrected portion of the image, and the capability to do so in real time relative to the user's input would certainly not have been obvious. Because claim 1 requires that the perspective correction processing performed by the "image transform processor means" be done "according to a combination of said digitized [input image] signals, said selected viewing angles and said selected magnification," we conclude that hypothetical claim 1 would not have been unpatentable over Ripley, Greene, and Onoe. Furthermore, because claim 5 additionally recites user input of a rotation angle, we

conclude that a hypothetical version of claim 5, depending from and further limiting hypothetical claim 1, would also not have been unpatentable over the prior art of record.

We reach our conclusion on this issue independently of the jury's verdict. Because we reach the same conclusion as the jury, we need not address the level of deference to which a jury's verdict is entitled in conducting a hypothetical claim analysis. Compare Wilson Sporting Goods, 904 F.2d at 683, 14 USPQ2d at 1948 (holding ensnarement to be an issue of law reviewed de novo) with Tegal Corp. v. Tokyo Electron Am., Inc., 257 F.3d 1331, 1348, 59 USPQ2d 1385, 1398 (Fed. Cir. 2001) (holding that underlying questions of fact in the context of obviousness are reviewed for clear error).

3. Equivalent of a Means-Plus-Function Limitation

Finally, Infinite argues that Interactive cannot assert infringement by equivalents of the "image transform processor means" limitation, because that limitation is not literally present in the SmoothMove® software, and the equivalent feature that is present in the SmoothMove® software predates the '667 patent. Infinite cites Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 46 USPQ2d 1752 (Fed. Cir. 1998), as the basis for its argument.

Interactive responds that this case is distinguishable from Chiuminatta; we agree. In Chiuminatta, we held that a finding that a component of an accused product is not a structure "equivalent" to the corresponding structure of a means-plus-function limitation for purposes of literal infringement analysis precludes a finding that the same structure is equivalent for purposes of the doctrine of equivalents,

unless the component constitutes technology arising after the issuance of the patent. Id. at 1311, 46 USPQ2d at 1758. However, when a finding of noninfringement under 35 U.S.C. § 112, paragraph 6, is premised on an absence of identical function, then infringement under the doctrine of equivalents is not thereby automatically precluded. WMS Gaming Inc. v. Int'l Game Tech., 184 F.3d 1339, 1353, 51 USPQ2d 1385, 1395 (Fed. Cir. 1999). That is because infringement under the doctrine of equivalents may be premised on the accused and the patented component having substantially the same function, whereas structure corresponding to the disclosed limitation in a means-plus-function clause must perform the identical function. Id.

In this case, as in WMS Gaming, the absence of literal infringement is due to a lack of identical function of the claimed means, not a lack of equivalent structure, as the district judge aptly recognized. Interactive Pictures, Corp. v. Infinite Pictures, Inc., No. 3:96-CV-849, slip op. at 3-5 (E.D. Tenn. Sept. 25, 2000). More precisely, the difference is that a different signal is input to the "image transform processor means." The claim recites that the input signal constitutes "said digitized signals," which refer to a digitized form of the image signals produced by a fisheye lens camera imaging system, whereas the asserted equivalent's input signal is an equirectangular panorama file. A difference of inputs to a signal processing element resulting in the same output necessarily implies a difference in function performed by the element. In fact, the jury in this case concluded that the difference was insubstantial. We will not reverse that fact-based decision as a matter of law. Accordingly, we affirm the district court's denial of Infinite's post-trial motion for JMOL on this issue.

B. The Factual Finding of Equivalents

Having concluded that resort to the doctrine of equivalents is not barred as a matter of law, we turn to the issue of equivalence in fact. The precise issue before us is whether substantial evidence supports the jury's finding that SmoothMove®, with its equirectangular panorama file, contains an element substantially the same as the "image transform processor means" limitation.

Infinite argues that there are substantial differences according to both the known interchangeability test and the function-way-result test. Concerning the former, Infinite argues that the equirectangular panorama .pan file is not interchangeable with the claimed digitized fisheye image data because the SmoothMove® Viewer is compatible with only the .pan file format. Concerning the latter, Infinite argues that the "image transform processor means" and the SmoothMove® program differ in function, way, and result because the claimed "means" can transform images in real time relative to motion in the image, whereas SmoothMove® can transform only static images.

Interactive responds that substantial evidence supports the jury's finding of equivalence. In particular, Interactive cites the testimony of its expert, Dr. Birdwell, that notwithstanding the incompatibility of data formats, the equirectangular panorama format is a known substitute for digitized fisheye signals and that the function of transforming a portion of an image in equirectangular panorama format is substantially the same as the function of transforming a portion of an image represented by digitized fisheye signals. Furthermore, Birdwell testified that the SmoothMove® Viewer contains structure the same as

or equivalent to the structure corresponding to the "image transform processor means."

We agree that substantial evidence supports the finding of equivalence. Although Infinite attacks Birdwell's testimony as being conclusory, the testimony is more than that. Birdwell showed the jury both a fisheye image and an image in an equirectangular panorama format, while testifying that one can be derived from the other. He also explained that perspective-correction processing of one of the two image forms is substantially the same as that of the other, and he illustrated the similarity with reference to Infinite's own block diagrams of the processing steps.

Infinite's arguments do not persuade us to the contrary. First, incompatibilities in computer data files do not necessarily rise to the level of substantial differences. Even the slightest difference in file formats often creates an incompatibility, because computers are exact machines. However, the law of patent infringement is not so limiting. A patent claim may be infringed if an element of the infringing device is only substantially the same as a limitation of the patent claim. Warner-Jenkinson, 520 U.S. at 29. Indeed, we have upheld determinations of equivalence on the ground that hardware and software implementations of a component of an invention are interchangeable substitutes, Overhead Door Corp. v. Chamberlain Group, Inc., 194 F.3d 1261, 1269-70, 52 USPQ2d 1321, 1326 (Fed. Cir. 1999), even though such a substitution would require ancillary changes in affected circuitry and packaging. Rather than focusing on physical or electronic compatibility, the known interchangeability test looks to the knowledge of a skilled artisan to see whether that artisan would contemplate the interchange as a design choice. Id. Viewed in that light, Birdwell's testimony that the

claimed digital fisheye image and SmoothMove's® equirectangular panorama file are "interchangeable alternatives" is substantial evidence supporting equivalence.

Secondly, we reject Infinite's function-way-result argument because the ability to transform moving images in real time relative to the motion is not part of either the function, way, or result of the "image transform processor means." As a preliminary matter, we consider the entire "image transform processor means" with its two associated functions to be one limitation. We do so because the two functions are accomplished by the same structure and are closely related. In fact, the first function, "processing said digitized signals in said input image memory means according to selected viewing angles and magnification," and the second function, "producing output transform calculation signals according to a combination of said digitized signals, said selected viewing angles and said selected magnification," are practically inseparable. Having identified the functions in the claim language itself, Lockheed Martin Corp. v. Space Sys./Loral, Inc., 249 F.3d 1314, 1324, 58 USPQ2d 1671, 1678 (Fed. Cir. 2001), we look to the way in which those functions are accomplished and the attendant results in the specification. In this case, the specification discloses particular transform equations, '667 patent, ll. 30-54 (equations (17) and (18)), implemented in a pair of "X-map and Y-map transform processors," which are "application specific integrated circuits or other means as may be known to persons skilled in the art," id. at col. 4, ll. 1-5. The results achieved by those functions are not limited to real time capabilities relative to movement in the image. Instead, as the applicant's remarks to the Examiner indicated, the results include real time capabilities relative to user input of viewing angle and magnification. Accordingly,

Infinite's argument in terms of the function-way-result test misses the mark.

Thus, Infinite's arguments do not reveal any flaw underlying the jury's finding of equivalence so serious as to indicate that the jury's finding is unsupported by substantial evidence. Essentially, Infinite invites us to reweigh the evidence of substantial similarity in its favor. We cannot accept that invitation. Nutrinova Nutrition Specialties & Food Ingredients GmbH v. Int'l Trade Comm'n, 224 F.3d 1356, 1359, 55 USPQ2d 1951, 1953 (Fed. Cir. 2000). We therefore affirm the district court's denial of Infinite's post-trial motion for JMOL on the issue of equivalence in fact.

C. Damages

Because we affirm the jury's verdict of infringement, we turn next to the jury's award of damages. Interactive's theory of damages was based on a reasonable royalty that the parties might have agreed to during a hypothetical negotiation when infringement began in 1996. Interactive's damages expert, Dr. Donald L. Martin, testified that the reasonable royalty would have been fully paid-up, covering a term of five years, at a rate of 10% of gross revenue. Martin presented two figures — an upper range and a lower range. They differed only in the royalty base. The upper range, $3.2 million, assumed sales increasing from $0.9 million in 1997 to $53 million in 2001, according to a five-year annual projection of total sales stated in an Infinite business plan prepared in 1996. The lower range, $1 million, assumed sales of $4 million in 1997, a figure also taken from the 1996 business plan, with annual increases at the rate of 2.68%, the average rate of growth in the economy over the last 20 years. The jury presumably accepted Martin's lower range. In

both cases, Martin asserted as the royalty base a projection of Infinite's total future sales.

Infinite first challenges the royalty base asserted by Interactive. Infinite argues that the royalty base was flawed because (1) Martin's projection of Infinite's future sales was speculative, as it was based on an outdated business plan and its optimistic assumptions of future revenue growth; and (2) Martin erroneously included sales of all of Infinite products, rather than just infringing products. Secondly, Infinite argues that the jury's award was tainted by testimony that Infinite's infringement caused a decrease in Interactive's stock price. Interactive defends the royalty base by responding that the 1996 business plan, dated two months before infringement began, was the best information at the time for a hypothetical negotiation and that Infinite's bundling and convoyed sales justified its inclusion of all Infinite products in the royalty base. Interactive also responds that Infinite failed to object to the testimony regarding its stock devaluation and that the jury was properly instructed to award damages on the basis of a reasonable royalty and not to award damages based on speculation or conjecture.

We agree with Interactive that Martin's testimony was not speculative by virtue of its reliance on Infinite's 1996 business plan. We have previously upheld awards of damages premised on a lump sum royalty payment based on an infringer's expected sales. E.g., Snellman v. Ricoh Co., 862 F.2d 283, 289, 8 USPQ2d 1996, 2001 (Fed. Cir. 1988). We have also endorsed the conceptual framework of a hypothetical negotiation between the patentee and the infringer as a means for determining a reasonable royalty. Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1554, 35 USPQ2d 1065, 1076-77 (Fed. Cir. 1995) (en banc). When that framework is employed, the negotiation

must be hypothesized as of the time infringement began. Wang Labs., Inc. v. Toshiba Corp., 993 F.2d 858, 869-70, 26 USPQ2d 1767, 1777-78 (Fed. Cir. 1993). Although "a trier of fact must have some factual basis for a determination of a reasonable royalty," consideration of a hypothetical negotiation "necessarily involves an element of approximation and uncertainty." Unisplay, S.A. v. Am. Elec. Sign Co., 69 F.3d 512, 517, 36 USPQ2d 1540, 1544 (Fed. Cir. 1995). In this case, the 1996 business plan and its projections for future sales were prepared by Infinite two months before infringement began. Thus, rather than being outdated for purposes of the hypothetical negotiation, those projections would have been available to Infinite at the time of the hypothetical negotiation. The fact that Infinite did not subsequently meet those projections is irrelevant to Infinite's state of mind at the time of the hypothetical negotiation. Nor does Infinite's subsequent failure to meet its projections imply that they were grossly excessive or based only on speculation and guesswork. Instead, Infinite's subsequent failure to meet its projections may simply illustrate the "element of approximation and uncertainty" inherent in future projections. Id. Because Martin's use of the sales projections from the 1996 business plan was supported by evidence, not grossly excessive, nor based only on speculation and guesswork, we will not the disturb the jury's damage award on that basis.

Interactive argues that Lindemann Maschinenfabrik GmbH v. Am. Hoist & Derrick Co., 895 F.2d 1403, 13 USPQ2d 1871 (Fed. Cir. 1990), compels a contrary result. We disagree. In that case we affirmed a district court's award of damages in derogation of the patentee's expert's testimony, which was based on estimates of the infringer's anticipated profits "that bore no relation to actual profits." Id. at 1407, 13 USPQ2d at 1875. Lindemann therefore

supports the proposition that an actual infringer's profit margin can be relevant to the determination of a royalty rate in a hypothetical negotiation. Id. at 1407-08, 13 USPQ2d at 1875 (citing Trans-World Mfg. Co. v. Al Nyman & Sons, Inc., 750 F.2d 1552, 1568, 224 USPQ 259, 269 (Fed. Cir. 1984)). However, Lindemann does not require that estimates of sales revenues, as referenced in a hypothetical negotiation at the time infringement began, must later bear a close relation to actual sales revenue. Such a proposition would essentially eviscerate the rule that recognizes sales expectations at the time when infringement begins as a basis for a royalty base as opposed to an after-the-fact counting of actual sales.

We also conclude that Martin permissibly included all Infinite products in the royalty base, and that Martin did not provide for an unfair double recovery by factoring the bundling and convoying sales into the royalty rate. The jury was entitled to rely on evidence of bundling and convoyed sales in determining the proper scope of the royalty base. Deere & Co. v. Int'l Harvester Co., 710 F.2d 1551, 1559, 218 USPQ 481, 487 (Fed. Cir. 1983) (authorizing such an approach as "eminently reasonable"); cf. Rite-Hite, 56 F.3d at 1548-49, 35 USPQ2d at 1072 (allowing recovery of lost profits from the patentee's unpatented components that compete directly with the infringing device and function together with the patented device). The fact that bundling and convoyed sales affected Martin's estimate of both the royalty base and the royalty rate is thus not a sufficient reason to nullify the jury's award. The "extent of . . . derivative or convoyed sales" is one of the often-cited Georgia-Pacific factors relevant to a determination of a reasonable royalty rate. Georgia-Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120, 166 USPQ 235, 238 (S.D.N.Y. 1970); see also State Indus., Inc. v. Mor-Flo Indus.,

Inc., 883 F.2d 1573, 1580-81, 12 USPQ2d 1026, 1031 (Fed. Cir. 1989) ("The value of collateral sales could also be factored into the royalty rate.") (citations omitted). Martin explained the application of that factor to the royalty rate in this case. Yet, the bundling and convoyed sales were just one of thirteen Georgia-Pacific factors used by Martin to justify a royalty rate of 10%. Even if we were to ignore the bundling and convoyed sales as a factor, the other twelve Georgia-Pacific factors provide ample evidentiary support for the resulting royalty rate, and we conclude that Martin's opinion, in its entirety, was not so excessive, speculative, the product of guesswork, or devoid of evidentiary support to warrant upsetting the jury's award.

We will also not reverse the jury's award of damages based on the testimony regarding stock devaluation in this case. Interactive's CFO testified that the market value of the company dropped $14 million in 1997, apparently due to Infinite's infringement. While it is true that a decrease in a company's stock value is generally too remotely related to patent infringement to be compensable under the patent laws, Rite-Hite, 56 F.3d at 1546, 35 USPQ2d at 1069, it is not clear that the testimony tainted the jury in this case. Rather, the jury award appears to have been based solely on Martin's lower range estimate of a reasonable royalty.

We have considered Infinite's other arguments on the issue of damages and find them to be without merit. Because substantial evidence supports the jury's award of damages, we conclude that the district judge did not abuse his discretion in denying Infinite's motion for remittitur or a new trial.

CONCLUSION

Because infringement by equivalents was not precluded as a matter of law and the jury's verdict of infringement and award of damages were supported by substantial evidence, we

AFFIRM.

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE

Case No. 3:96-CV-849

INTERACTIVE PICTURES CORPORATION, fka OMNIVIEW, INC.,

Plaintiff,

v.

INFINITE PICTURES, INC., and BILL TILLMAN, GARY WALTENBAUGH, and CRAIG JONES, dba GRAPHIC EFFECTS, aka GRAPHIC EFX,

Defendants,

AMENDED JUDGMENT IN A CIVIL CASE

[] Jury Verdict. This action came before the Court for a trial by jury. The issues have been tried and the jury has rendered its verdict.

[X] Decision by Court,

IT IS ORDERED AND ADJUDGED that Infinite Pictures' renewed motion for judgment as a matter of law, or in the alternative, for a new trial, is hereby **DENIED** in all respects. IPIX's motion to amend the final judgment [doc. 212] is **GRANTED** in respect to the identity of the parties or entities bound by injunction, otherwise, the motion is **DENIED.**

Judgment is entered in favor of plaintiff IPIX and against defendant Infinite Pictures and defendant Bill Tillman d/b/a Graphic Efx in this action in the

sum of One Million Dollars ($1,000,000.00) plus interest on that amount from August 1, 1996, at the judgment rate prescribed by 28 USC §1961 as of the date of entry of this judgment (4.732% annually), until paid in full. As of March 31, 1999 this amount totaled One Million One Hundred Thirty-One Thousand Two Hundred Ninety-Two and 46/100ths ($1,131,292.46). From and after March 31, 1999, and until August 1, 1999, the daily interest on said amount shall be One Hundred Forty-Two and 20/100ths Dollars ($142.20), at which time the amount shall be compounded as prescribed by 28 USC §1961(b). The liability of Infinite Pictures and Graphic Efx for satisfaction of this judgment is and shall be joint and several.

Defendants Infinite Pictures and Graphic Efx, their officers, agents, servants employee and attorneys, and those in active concert or participation with them who receive actual notice or the order by personal service or otherwise are hereby restrained and permanently enjoined from infringing the '667 patent.

Infinite Pictures shall bear all costs incurred by IPIX in this litigation.

Date: September 25, 2000

Patricia L. McNutt,
Clerk

/s/D. Crumpton
Deputy Clerk

Date: 9-25-00
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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE
AT KNOXVILLE

Case No. 3:96-CV-849

INTERACTIVE PICTURES CORPORATION,
f/k/a OMNIVIEW, INC.,

Plaintiff,

v.

INFINITE PICTURES, INC., et al

Defendants,

MEMORANDUM AND ORDER

This civil action is before the court for consideration of three motions that have been filed post trial [docs. 213, 216 & 220]. After a lengthy trial, the jury found in favor of plaintiff in this patent infringement case and awarded plaintiff damages in the amount of $1,000,000. A final judgment was entered [doc. 211]. Defendant, Infinite Pictures, Inc. ("Infinite Pictures") , has filed renewed motion for judgment as a matter of law, or in the alternative, for a new trial [doc. 216] and a motion for stay of proceedings to enforce judgment pending consideration of its motion for judgment as a matter of law [doc. 213]. Plaintiff, Interactive Pictures Corporation, fka Ominiview, Inc. ("IPIX"), has filed a motion to amend the final judgment [doc. 220]. The court will first address the motion for judgment as a matter of law ("JMOL") filed by Infinite Pictures.

Infinite Pictures' JMOL motion renews issues raised in its pretrial motions for summary judgment, its motions for judgment that were presented after presentation of plaintiff's proof and renewed at the close of all evidence, and its motions for judgment on issues reserved to the court. Infinite Pictures is seeking relief from the jury's verdict of infringement by asking for a judgment as a matter of law that its accused SmoothMove software does not infringe U.S. Patent No. 5,185,667 (the "667 patent") under the doctrine of equivalents. Alternatively, Infinite Pictures seeks a new trial on the issue of infringement. Infinite Pictures also seeks a judgment as a matter of law that the claims of the '667 patent are invalid under 35 U.S.C. §112. Should the court uphold the jury's verdicts on infringement and validity, Infinite Pictures alternatively asks that the damage award of $1,000,000 be set aside in favor of a remittitur. Should the remittitur be refused by IPIX, Infinite Pictures seeks a new trial on the issue of damages. The court heard oral argument on this motion [doc. 241].

A JMOL is appropriate when "a party has been fully heard on an issue and there is no legally sufficient evidentiary basis for a reasonable jury to find for that party on that issue." Fed. R. Civ. P. 50(a)(1). "A district court may overturn a jury's verdict on a motion for JMOL, only if, upon the record before the jury, reasonable persons could not reach the verdict returned by that jury." *Union Oil Co. of California v. Atlantic Richfield Co.*, 208 F.3d 989,994 (Fed. Cir. 2000). The party seeking a JMOL must demonstrate that the jury's findings "are not supported by substantial evidence or, if they were, that the legal conclusion(s) implied from the jury's verdict cannot in law be supported by those findings." *Celeritas Technologies, Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1358 (Fed. Cir. 1998).

Relying on *Chiuminatta Concrete Concepts v. Cardinal Industries, Inc.*, 145 F.3d 1303 (Fed. Cir. 1998), Infinite Pictures contends that the jury's verdict of infringement under the doctrine of equivalents should be overturned as a matter of law. Infinite Pictures' position is that *Chiuminatta* reflects the current and correct standard for analysis of infringement under 35 U.S.C. §112(6) and the doctrine of equivalents. Infinite Pictures argues that a finding of nonequivalence under 35 U.S.C. §112(6) generally precludes a finding of equivalents unless the equivalence issue concerns after-arising technology. It notes that the Federal Circuit in *Chiuminatta* instructed that the doctrine of equivalents does not cover a structure which was known when the patent was granted and which could have been disclosed in the patent but was not. Thus, Infinite Pictures concludes that because IPIX admitted the SmoothMove software does not literally contain the image transform process means and it is undisputed that the accused technology was known and available when the '667 patent was granted, as a matter of law, IPIX's contention of infringement under the doctrine of equivalents must fail.

IPIX contends tht the Federal Circuit's opinion in *Odetics, Inc. v. Storage Technology Corp.*, 185 F.3d 1259 (Fed. Cir. 1999) makes clear that Infinite Pictures' reading of *Chiuminatta* and its analysis based on that reading is incorrect. IPIX relies *inter alia* on language in *Odetics* in which the Federal Circuit stated that "*Chiuminatta*" did not mark a change in the proper infringement analysis under §112(6)." The Court in *Odetics* reversed the district court's grant of a JMOL which had been based on the analysis in *Chiuminatta* and reinstated the jury's verdict which was supported by substantial evidence. *Odetics*, 185 F.3d at 1263. IPIX argues that in doing

so, the Court in *Odetics* gave no significance to the fact that the equivalent structure at issue predated the patent in suit which is the basis for Infinite Pictures' motion.

IPIX further argues that the case herein presents a different situation than that in *Chiuminatta* in which the asserted equivalent structure performed the identical function as that recited in the claims. IPIX maintains that the question in *Chiuminatta* was whether that function was performed in substantially the same way achieving the same result, and there was no literal infringement under §112(6) since the accused device operated in a substantially different way. IPIX contends that the inference from the jury's verdict in this case is that the jury found the infringing SmoothMove software performs substantially the same function in substantially the same way, and achieves substantially the same results as in the claims.

IPIX also contends that the decision in *WMS Gaming, Inc. v. International Game Technology*, 184 F.3d 1339 (Fed. Cir. 1999) enhances its position. IPIX points out that the Federal Circuit reversed the district court's holding of literal infringement based on a lack of identity of function and concluded that the accused device could still infringe under the doctrine of equivalents, unlike in *Chiuminatta*. Thus, IPIX argues that the Court in *WMS Gaming* made it clear that an accused device may infringe under the doctrine of equivalents without there being literal infringement under §112(6). Infinite Pictures, however, argues that IPIX cannot take advantage of the suggestion in *WMS Gaming* that a finding of no literal infringement under §112(6), that is based on a lack of identity of function, instead of the lack of equivalent structure, permits avoidance of the rule in *Chiuminatta*. Infinite Pictures supports this position

by pointing out that IPIX did not make such a distinction when it abandoned its claim of literal infringement, recognizing that the SmoothMove product does not meet the image transform processor means of the asserted claims and that it did not make such distinction when it opposed Infinite Pictures' request for summary adjudication of noninfringement.

In addition to contending that it is entitled to a judgment of noninfringement as a matter of law, Infinite Pictures maintains that there is a lack of sufficient evidence that the claimed invention and the accused SmoothMove software are substantially equivalent and, therefore, the verdict cannot stand. Infinite Pictures argues that IPIX failed to present at trial substantial evidence to demonstrate that Infinite Pictures' software is the substantial equivalent of the "image transform processor means" in the '667 patent.

IPIX argues, however, that the issue of technological equivalence was properly before the jury and that the evidence at trial was overwhelming and demonstrated that the differences between the claimed invention and the accused SmoothMove software are insubstantial only. IPIX points to the documentary and testimonial evidence of equivalence it introduced at trial including the testimony and opinions of its expert, Dr. Douglas Birdwell.

After due consideration of Infinite Pictures motion as it pertains to the grant of a JMOL, the court concludes that it is not well taken and a JMOL is not called for in this case. The court is mindful of the standard which must be met in order to grant a JMOL, and it does not believe that standard has been met here. The court has considered the arguments by counsel but does not believe that the law requires or compels it to overturn the jury's finding of infringement under the doctrine of equivalents as a

matter of law. Further, the record reflects that the jury had before it ample substantial evidence to find as it did, and there is no reason to overturn the jury's finding on that basis.

However, Infinite Pictures also moves alternatively for a new trial on the issue of infringement under the doctrine of equivalents and also for a remittitur or new trial on the issue of damages. Federal Rule of Civil Procedure 59(a) provides that a "new trial may be granted to ...any of the parties...in an action in which there has been a trial by a jury, for any of the reasons for which new trials have heretofore been granted in actions at law in courts of the United States." Fed.R.Civ.P. 59(a). The court must determine "whether, in the conduct of the trial, an error occurred that was so egregious as to render the trial unfair." *Advanced Display Systems, Inc. v. Kent State University*, 212 F.3d 1272, 1284 (Fed. Cir. 2000) (citing *DMI, Inc. v. Deere & Co.*, 802 F.2d 421, 427 (Fed.Cir. 1986). The court has considered Infinite Pictures' request in view of this standard and the record herein and finds no reason for granting a new trial on the issue of infringement under the doctrine of equivalents.

The court also concludes that there is no reason for a remittitur or new trial on the issue of damages. A remittitur is within the discretion of the court. *See Smith v. John Swafford Furniture Co.*, 614 F.2d 552 (6th Cir. 1980); *Manning v. Altec, Inc.*, 488 F.2d 127 (6th Cir. 1973). Infinite Pictures argues *inter alia* that the evidence presented by IPIX on the issue of damages was based on speculative expert testimony and unsupported allegations of decreased stock value and sales that were never lost. However, the court has carefully considered this issue and finds that there is no basis for a remittitur or new trial on the issue of damages. The jury's award of damages is well

supported by sufficient evidence and represents adequate compensation to IPIX.

Infinite Pictures also seeks in its motion a JMOL on the is due of invalidity and relies on its prior briefing, presenting no new or additional argument here. The court has already ruled on this issue and finds no basis to alter or reverse its prior ruling [doc. 208].

Accordingly, Infinite Pictures' renewed motion for judgment as a matter of law, or in the alternative, for a new trial, is hereby **DENIED** in all respects.

In addition, Infinite Pictures' motion for stay of proceedings to enforce judgment [doc. 213] is hereby **DENIED AS MOOT.**

IPIX has filed a motion to amend the June 16, 1999 final judgment [doc.220]. In its motion IPIX seeks to have expressly identified in the judgment those who are bound by the injunction and also seeks to clarify the scope of the injunction. Infinite Pictures does not contest IPIX's request to clarify the identity of the parties or entities bound by the injunction pursuant to Fed.R.Civ.P. 65(d) [doc. 221]. Therefore, this portion of IPIX's motion to amend the final judgment is **GRANTED.**

The following language shall be inserted in the final judgment [doc. 211] at page 3, line 1 of paragraph 4, after "Graphic Efx":

--, their officers, agents, servants,
employees and attorneys, and
those in active concert or participation
with them who receive actual notice
of the order by personal service or
otherwise, --

IPIX also seeks to amend the final judgment by modifying the languge in subpart b of paragraph 5, in particular the current reference to "hemispherical fisheye lens cameras." IPIX is concerned that this language is subject to being construed in an unduly restrictive manner and argues that its invention encompasses fisheye lenses which might not be considered "hemispherical" lenses but which provide a hemispherical image field of view; thus, the injunction should not be limited to exclude fisheye lenses. Therefore, IPIX contends that the proposed modification clarifies the scope of the injunction and is consistent with the mandate of Fed.R.Civ.P. 65(d) and the scope of the '667 patent.

Infinite Pictures responds by contending *inter alia* that IPIX is in essence presenting a hypothetical question that requires an advisory opinion from the court; that IPIX wants to extend the injunction to cover not only the hemispherical (180 degree) fisheye lens at issue in this case but also other lens types as the known 220 degree lenses capable of providing a hemispherical view not at issue in this case; that the only product in suit, the SmoothMove software, used a hemispherical fisheye lens; and that IPIX's proposed amendment is tantamount to a claim for injunctive relief concerning a product whose infringement has not been adjudicated and in fact does not exist.

After due and careful consideration, the court concludes that the amendment to the final judgment proposed by IPIX is not called for. The court made its determination concerning the scope and defining boundaries of the injunction when it considered the proposed judgment forms submitted by the parties and then entered the final judgment. The court finds no reason to alter that determination now.

Accordingly, plaintiff's motion to amend the June 16, 1999 final judgment [doc. 220] is hereby **DENIED.**

IT IS SO ORDERED.

ENTER:

/s/Leon Jordan
Leon Jordan
United States District
Judge

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE

Case No. 3:96-CV-849

INTERACTIVE PICTURES CORPORATION, fka OMNIVIEW, INC.,

Plaintiff,

v.

INFINITE PICTURES, INC., and BILL TILLMAN, GARY WALTENBAUGH, and CRAIG JONES, dba GRAPHIC EFFECTS, aka GRAPHIC EFX,

Defendants,

JUDGMENT IN A CIVIL CASE

[X] Jury Verdict. This action came before the Court for a trial by jury. The issues have been tried and the jury has rendered its verdict.

[] Decision by Court, This action came to trial or hearing before the Court. The issues have been tried or heard and a decision has been rendered.

IT IS ORDERED AND ADJUDGED that judgment is entered in favor of plaintiff IPIX and against defendant Infinite Pictures and defendant Bill Tillman d/b/a Graphic Efx in this action in the sum of One Million Dollars ($1,000,000.00) plus interest on that amount from August 1, 1996, at the judgment rate prescribed by 28 USC 1961 as of the date of entry of this judgment (4.732% annually), until paid in full. As of March 31, 1999 this amount totaled One Million

One Hundred Thirty-One Thousand Two Hundred Ninety-Two and 46/100ths ($1,131,292.46). From and after March 31, 1999, and until August 1, 1999, the daily interest on said amount shall be One Hundred Forty-Two and 20/100ths Dollars ($142.20), at which time the amount shall be compounded as prescribed by 28 USC 1961(b). The liability of Infinite Pictures and Graphic Efx for satisfaction of this judgment is and shall be joint and several.

Defendants Infinite Pictures and Graphic Efx are hereby restrained and permanently enjoined from infringing the '667 patent.

Infinite Pictures shall bear all costs incurred by IPIX in this litigation.

Date: June 16, 1999

R. Murray Hawkins
Clerk

/s/D. Crumpton
Deputy Clerk

Date: _____
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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE
NORTHERN DIVISION, AT KNOXVILLE

Case No. 3:96-CV-849

INTERACTIVE PICTURES CORPORATION, fka OMNIVIEW, INC.,

Plaintiff,

v.

INFINITE PICTURES, INC., and BILL TILLMAN, GARY WALTENBAUGH, and CRAIG JONES, dba GRAPHIC EFFECTS, aka GRAPHIC EFX,

Defendants.

FINAL JUDGMENT

This civil action having been tried before this Court with a jury on January 5-9 and 12-14, 1998, and on February 2-6 and 9-10, 1998, and the jury having found in favor of the plaintiff, Interactive Pictures Corporation, f/k/a Omniview, Inc. ("IPIX"), and against the defendant Infinite Pictures, Inc. ("Infinite Pictures"), and awarded plaintiff damages against this defendant in the amount of $1,000,000, and the defendant Bill Tillman d/b/a Graphic Efx, a/k/a Graphic Effects("Graphic Efx") having failed to appear for trial and being in default, it is hereby

ORDERED, ADJUDGED AND DECREED that:

1. IPIX is the owner of all right, title and interest in and to United States Patent No. 5,185,667 (the '667

patent). None of the claims of the '667 patent has been found invalid or unenforceable.

2. Defendants have infringed the '667 patent under the doctrine of equivalents by manufacturing, using, offering for sale and selling the combination of Infinite Pictures' Smoothmove Photo Seamer and Infinite Pictures' Viewer software for use in the United States for use on images taken with a hemispherical fisheye lens, through the selective perspective correction and viewing of portions of the hemispherical image.

3. Judgment is entered in favor of plaintiff IPIX and against defendant Infinite Pictures and defendant in default Bill Tillman d/b/a/ Graphic Efx in this action in the sum of One Million Dollars ($1,000,000) plus interest on that amount from August 1, 1996, at the judgment rate prescribed by 28 USC 1961 as of the date of entry of this judgment (4.732% annually), until paid in full. As of March 31, 1999 this amount totaled One Million One Hundred Thirty-One Thousand Two Hundred Ninety-Two and 46/100ths ($1,131,292.46). From and after March 31, 1999, and until August 1, 1999, the daily interest on said amount shall be One Hundred Forty-Two and 20/100ths Dollars ($142.20), at which time the amount shall be compounded as prescribed by 28 USC 1961(b). The liability of Infinite Pictures and Graphic Efx for satisfaction of this judgment is and shall be joint and several.

4. Defendants Infinite Pictures and Graphic Efx are hereby restrained and permanently enjoined from infringing the '667 patent by making, using, distributing or selling, or offering for sale in the United States a combination of Infinite Pictures' Photo Seamer and Viewer software products or any other software products no more than colorably different

from a combination of the Photo Seamer and Viewer software products, for use in transforming fisheye photographic images and then correcting the perspective on and viewing selected portions of the resulting hemispherical images.

5. Nothing in this injunction shall preclude or prevent defendants Infinite Pictures and Graphic Efx from making, using, distributing or selling or offering for sale in the United States, any seamer or viewer software that is used in ways that do not infringe the '667 patent, including without limitation in or for any of the following applications:

a. processing or viewing computer graphics generated images;

b. processing, projecting or viewing photographic images that are not taken with hemispherical fisheye lens cameras; and

c. any use for or on behalf of the U.S. Government for which the Government has a right to a royalty-free use of the'667 patent.

6. The counterclaim of defendant/counterclaim plaintiff Infinite Pictures is hereby dismissed with prejudice.

7. Jurisdiction is retained by this Court for the purpose of enabling the parties to apply to this Court at any time for further orders or directions as may be necessary for the enforcement of or compliance with the Judgment.

8. Infinite Pictures shall bear all costs incurred by IPIX in this litigation. Pursuant to E.D. Tn. L.R. 54.1, in the absence of an agreement among counsel for the litigants, IPIX shall file and serve upon opposing

counsel its bill of costs within thirty (30) days from entry of this Final Judgment.

ENTER:

/s/Leon Jordan
Leon Jordan
United States District
Judge

(Court's Stamp: Filed June 16, 1999, U.S. District Court, Eastern Dist. Tenn., By /s/ DC, Dep. Clerk)

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

Appeal No. 01-1029

INTERACTIVE PICTURES CORPORATION
(formerly known as Omniview, Inc.)

Plaintiff-Appellee,

v.

INFINITE PICTURES, INC.,

Defendant-Appellant,

and

BILL TILLMAN, CRAIG JONES and WALTENBAUGH
(doing business as Graphic Effects, aka Graphic EFX)

Defendants.

ORDER

A combined petition for panel rehearing and for rehearing en banc having been filed by the APPELLANT, and a response thereto having been invited by the court and filed by the APPELLEE, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc and response having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for panel rehearing be, and the same hereby is, DENIED and it is further

ORDERED that the petition for rehearing en banc be, and the same hereby is, DENIED.

The mandate of the court will issue on March 28, 2002.

FOR THE COURT,
/s/ Jan Horbaly, Clerk

Dated: March 21, 2002

cc: Alexander C. Johnson, Jr.
Robert F. Altherr, Jr.

INTERACTIVE PICTURES V INFINITE PIC, 01-1029
(DCT - 96-CV-849)

Note: Pursuant to Fed. Cir. R. 47.6, this order is not citable as precedent. It is a public record.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

Appeal No. 01-1029

INTERACTIVE PICTURES CORPORATION
(formerly known as Omniview, Inc.),

Plaintiff-Appellee,

v.

INFINITE PICTURES, INC.,

Defendant-Appellant,

and

BILL TILLMAN, CRAIG JONES and WALTENBAUGH
(doing business as Graphic Effects, aka Graphic EFX)

Defendants.

JUDGMENT

ON APPEAL from the UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TENNESSEE

In Case NO(S). *96-CV-849*

This CAUSE having been heard and considered, it is ORDERED and ADJUDGED:

AFFIRMED

ENTERED BY ORDER OF THE COURT

DATED Dec 20 2001 */s/ Jan Horbaly, Clerk*

ISSUED AS A MANDATE: MARCH 28, 2002

28 U.S.C. §1254. - Courts of appeals; certiorari; certified questions

Cases in the courts of appeals may be reviewed by the Supreme Court by the following methods:

(1)

By writ of certiorari granted upon the petition of any party to any civil or criminal case, before or after rendition of judgment or decree;

35 U.S.C. §112. - Specification

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

A claim may be written in independent or, if the nature of the case admits, in dependent or multiple dependent form.

Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

A claim in multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed. A multiple dependent claim shall not serve as a basis for any other multiple dependent claim. A multiple dependent claim shall be construed to incorporate by reference all

the limitations of the particular claim in relation to which it is being considered.

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof

U.S. CONST. art. I, § 8, cl. 8:

Section 8. The Congress shall have power to lay and collect taxes, duties, imposts and excises, to pay the debts and provide for the common defense and general welfare of the United States; but all duties, imposts and excises shall be uniform throughout the United States;

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To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries;

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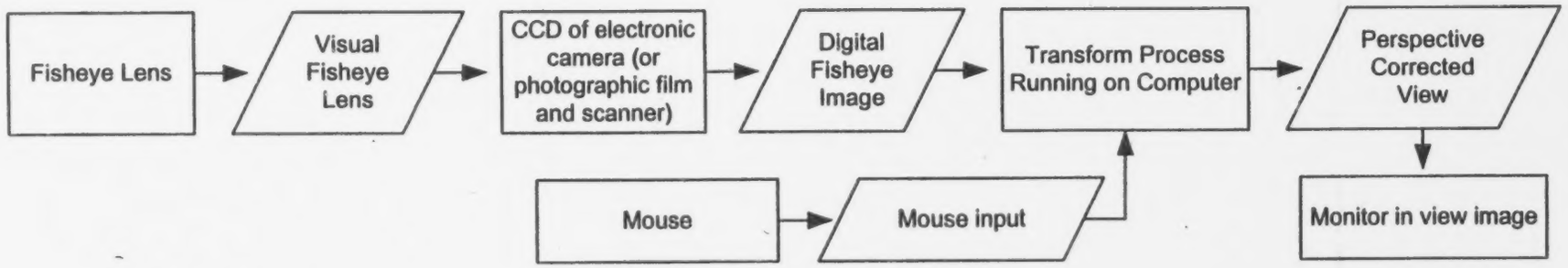
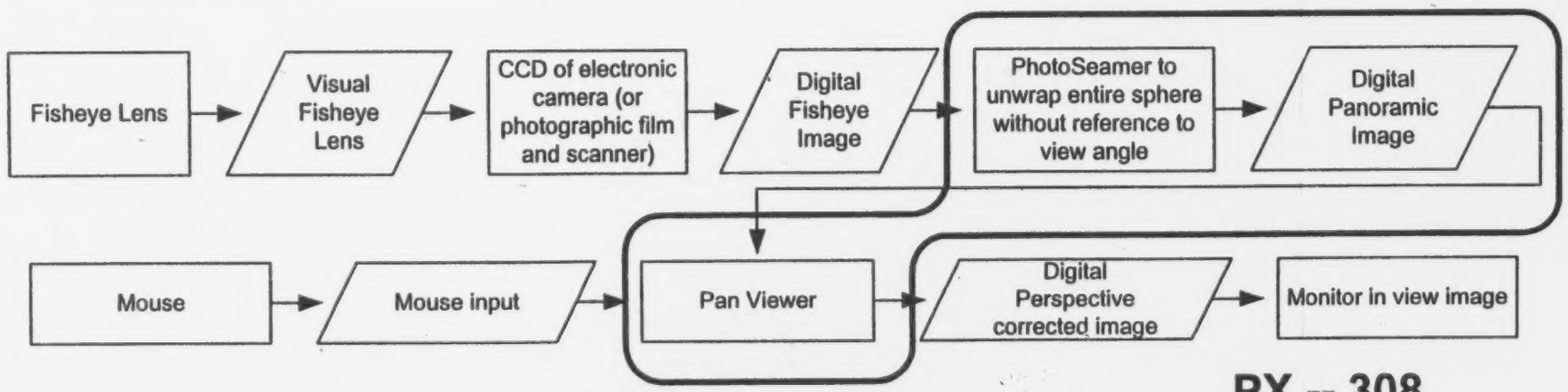
Infinite Pictures Infringes

OmniView's System



Infinite Picture's System



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